

Remarks:

Claims 1-14 were pending prior to entry of the present amendments, claims 15-18 having been withdrawn pursuant to a restriction requirement. Claims 1, 3, and 13 have been amended. Claim 2 has been canceled. No new matter has been added.

Claims 1 and 3-14 remain pending. Reconsideration is respectfully requested in view of the above amendments and following remarks.

Inventorship

Applicants acknowledge that the inventorship has been corrected and note that a corrected filing receipt has not yet been received to reflect the correct inventorship. Applicants respectfully request that the Examiner confirm that the Office records have been corrected and that the OIPE will issue a corrected filing receipt in due course.

Claim Rejections under 35 U.S.C. § 112, Second Paragraph

Claim 3:

Claim 3 stands rejected under 35 U.S.C. § 112, second paragraph, on the ground that the phrase “a relative precision better than 10^{-3} ” is indefinite because the numerical value has no units.

The phrase “relative precision better than 10^{-3} ” has been replaced with the phrase “systematic and statistical error lower than 0.1%.” Support for the amendment can be found in the specification at paragraph [0014], which defines these two phrases as equivalent.

Because a person of ordinary skill in the art understands the meaning of a systematic and statistical error expressed as a percentage of the value being measured, Applicants respectfully submit that claim 3 is definite.

Claims 13 and 14:

Claims 13 and 14 purportedly stand rejected under 35 U.S.C. § 112, second paragraph, although the Examiner has not set forth reasons for the rejection.

Applicants note that claims 13 and 14 had been rejected in the Office Action of May 11, 2007 on the grounds that the step (formerly recited) in claim 13 of “measuring at least one sound velocity in said prepared sample” was unclear. In the Response filed on October 1, 2007, claim 13 was amended to recite “measuring at least one sound velocity value through said sample,” and Applicants presented arguments as to why the amendment overcame the rejection. The Examiner has not addressed the amendment or arguments with respect to claim 13. Claim 14 depends from claim 13.

Claim 13 is clear because a person of ordinary skill in the art would undoubtedly understand the phrase “measuring a sound velocity through a sample” to mean measuring the velocity with which sound travels in, or is transmitted through, a sample. In the specification at paragraph [0033], Applicants disclose measuring the velocity of sound in a sample using a RESOSCAN™. It is well known in the art that this machine measures the speed of sound traveling in or through a given sample. Therefore, claims 13 and 14 are definite.

Accordingly, Applicants respectfully request that the rejection of claims 3, 13, and 14 under 35 U.S.C. § 112, second paragraph be withdrawn.

35 U.S.C. § 101 Rejection

Claims 1-14 stand rejected under 35 U.S.C. § 101 as being drawn to nonstatutory subject matter.

Claim 1 has been amended to recite an additional step of “displaying the at least one diagnostic characteristic on a display.” Support for the amendment can be found in the specification at least at paragraph [0035] and in FIG. 2. Claims 2-12 depend from claim 1.

Claim 13 has been amended to recite that the method comprises “detecting at least one predetermined disease producing biomolecule in the sample to obtain diagnostic information from the sample” and includes an additional step of “displaying the diagnostic information on a display.” Support for the amendment can be found in the specification at least at paragraph [0035] and in FIG. 2. Claim 14 depends from claim 13.

Thus, in view of the amendments to claims 1 and 13, the claimed invention produces a useful, concrete, and tangible result. Accordingly, Applicants respectfully request that the rejection of claims 1-14 under 35 U.S.C. § 101 be withdrawn.

35 U.S.C. § 102(b) Rejection

Claims 1, 10, and 11 stand rejected under 35 U.S.C. § 102(b) as anticipated Berg. Claim 1 has been amended to incorporate the features formerly recited in claim 2, which has been canceled. Claims 10 and 11 depend from claim 1.

Berg was not applied against claim 2 because Berg does not teach the features formerly recited in claim 2. Therefore, Applicants respectfully submit that as-amended claim 1 is patentable over Berg. Accordingly, Applicants respectfully request that the rejection of claims 1, 10, and 11 under 35 U.S.C. § 102(b) be withdrawn.

35 U.S.C. § 103(a) Rejections (Lowe in view of Atkinson)

Claims 1, 2, 5, 7-9, and 12 stand rejected as obvious under 35 U.S.C. § 103(a) over Lowe in view of Atkinson.

The Examiner acknowledges that Lowe fails to teach measuring quantitatively at least one macroscopic physical property “by interaction of the sample with sound waves,” but contends that Atkinson teaches “a method of measuring quantitatively a macroscopic physical property by accommodating a sample in a measuring device.” Applicants respectfully submit that by the language set forth in the Office Action, the Examiner has failed to remedy the admitted deficiencies of Lowe with the teachings of Atkinson.

Regarding the substance of the references, it is clear that Atkinson cannot properly be cited to make up for the failure of Lowe to teach the use of sound waves to measure quantitatively at least one macroscopic physical property of a sample, as recited in claim 1. Indeed, Atkinson specifically acknowledges that no macroscopic physical properties are measured by the ultrasonic echo observed in the experiments discussed therein: “This granular echo is not due to any special structure in the blood on the scale observed but probably arises from fluctuation scattering by the random distribution of red cells.” Atkinson at Abstract. Moreover, far from being able to quantify a macroscopic physical

property of the sample, Atkinson attempts to develop a statistical diffraction theory and admittedly falls short in some respects, noting that the “mean relative echo envelope” that is calculated by the formulae developed under theory to explain the measured echo is “in error by a factor of thirteen.” Atkinson at Abstract. A person of ordinary skill in the art would understand a measurement technique and theory resulting in such an enormous error to be unusable for quantitative measurement and diagnostic investigation, as is recited in claim 1 and its dependent claims 2-12.

Applicants further disagree with the Examiner’s assertion that: “One of ordinary skill in the art could have combined the methods [of Lowe and Atkinson] with no change in their functions,” because there is no rational basis on which these teachings could be combined. In particular, Lowe teaches the measurement of viscosity of blood using a method not pertinent to the present invention, while Atkinson teaches the measurement of an ultrasonic echo back-scattered by blood but is unable to correlate that measurement with any macroscopic physical property of blood, much less with viscosity.

Therefore, while the Examiner is correct that “[e]ach method could be conducted on a sample of blood without impacting the other method,” it is only because the teachings of Lowe and Atkinson are completely unrelated and therefore not combinable to produce any useful result. The fact that Lowe teaches measurement of viscosity but fails to teach the use of sound waves to do so, and the fact that Atkinson discloses the measurement of sound echo waves uncorrelated to viscosity or any other macroscopic physical property, would not be connected by a person of ordinary skill in the art because one has no impact on, or relationships with, the other. Most importantly, performing the teachings of both Lowe and Atkinson does not result in the presently claimed invention.

Accordingly, Applicants respectfully request that the rejection of claims 1, 2, 5, 7-9, and 12 under 35 U.S.C. § 103(a) be withdrawn.

35 U.S.C. § 103(a) Rejections (Lowe in view of Atkinson further in view of Aarnoudse)

Claims 4 and 6 stand rejected as obvious under 35 U.S.C. §103(a) over Lowe in view of Atkinson further in view of Aarnoudse.

Claims 4 and 6 depend, directly or indirectly, from claim 1. As discussed above, Lowe in view of Atkinson fails to render obvious claim 1, and Aarnoudse does not remedy the deficiencies of Lowe and Atkinson. Therefore, without prejudice to their individual merits, claims 4 and 6 are patentable over Lowe in view of Atkinson further in view of Aarnoudse, for at least the same reasons as claim 1.

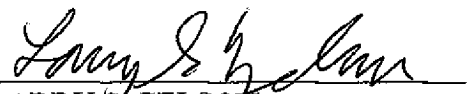
Accordingly, Applicants respectfully request that the rejection of claims 4 and 6 under 35 U.S.C. § 103(a) be withdrawn.

Conclusion

In view of the foregoing amendments and arguments, Applicants respectfully submit that the application, including all pending claims, is in condition for allowance. An early notice of allowance is earnestly solicited.

Respectfully Submitted,
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